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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,995	02/21/2002	Mindaugas F. Dautartas	23091/16 (ACT-179)	1731

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HALEOS, INC.
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EXAMINER	
WOOD, KEVIN S	

ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/081,995	DAUTARTAS, MINDAUGAS F.	
	Examiner	Art Unit	
	Kevin S Wood	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 14-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *11 and 22* is/are allowed.

6)☐ Claim(s) *1,2,4-10 and 14-21* is/are rejected.

7)☒ Claim(s) *3* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 February 2002* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. *0304* .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Brian Healy
Primary Examiner

DETAILED ACTION

Response to Amendment

1. This action is responsive to the After-Final Amendment filed 5 March 2004. Claims 11 and 22 have been amended. Claims 1-11 and 14-22 are pending in the application.

2. Based on the amendment, the rejection of claim 22 under 35 U.S.C. 112, second paragraph, is withdrawn.

Response to Arguments

3. Applicant's arguments, filed on 5 March 2004, with respect to claims 11 and 22 have been fully considered and are persuasive. The rejections of claims 11 and 22 have been withdrawn.

4. Applicant's arguments with respect to claims 1-10 and 14-21 have been considered but are moot in view of the new ground(s) of rejection. Claims 1-9 and 14-21 were stated to be allowable in the previous office action. The examiner has found new art that is used to reject these claims. Based on the new art and these new rejections, the finality of last office action is withdrawn.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> **A person shall be entitled to a patent unless –**

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 2, 4-10, 14-16 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,015,976 to Hatakeyama et al.

Referring to claim 1, Hatakeyama et al. discloses all the limitations of the claimed invention. Hatakeyama et al. discloses a method of manufacturing an optical device including: moving a mask (M) situated between a layer of optical waveguide material (W) to be shaped and a source of etchant ions (212), wherein at least two areas of the optical waveguide material are exposed to variable amounts of etchant ions, thereby causing vertical thickness variations between the at least two areas. See Fig. 80 through Fig. 121, along with their respective portions of the specification. Ion beam etching is specifically disclosed in col. 21, line 57 through col. 23, line 2.

Referring to claim 2, Hatakeyama et al. discloses all the limitations of the claimed invention. Hatakeyama et al. discloses a mask (M) having a comb shape comprising teeth. See Fig. 98 and Fig. 100.

Referring to claim 4, Hatakeyama et al. discloses all the limitations of the claimed invention. Hatakeyama et al. discloses a mask (M) having at least one slit. See Fig. 98 and Fig. 100.

Referring to claim 5, Hatakeyama et al. discloses all the limitations of the claimed invention. Hatakeyama et al. discloses a mask (M) that may be stationary.

Referring to claims 6, 14 and 21, Hatakeyama et al. discloses all the limitations of the claimed invention. Hatakeyama et al. discloses a vertically tapered waveguide produced by the method. See the Figures of the reference. Many of the workpieces (W) are vertically tapered.

Referring to claim 7, Hatakeyama et al. discloses all the limitations of the claimed invention. Hatakeyama et al. discloses a diffraction grating produced by the method. See Fig. 102 and Fig. 103, along with their respective portions of the specification.

Referring to claim 8, Hatakeyama et al. discloses all the limitations of the claimed invention. Hatakeyama et al. discloses the mask (M) moving in a linear direction with respect to the plane of the optical waveguide direction. See Fig. 100, Fig. 102 and Fig. 107.

Referring to claims 9 and 10, Hatakeyama et al. discloses all the limitations of the claimed invention. Hatakeyama et al. discloses the mask (M) reciprocating with respect to the plane of the optical waveguide direction. See Fig. 104 through 106, along with their respective portions of the specification.

Referring to claim 15, Hatakeyama et al. discloses all the limitations of the claimed invention. Hatakeyama et al. discloses the waveguide material (W) may be silicon. See col. 22, lines 52 through col. 23, line 2.

Referring to claim 16, Hatakeyama et al. discloses all the limitations of the claimed invention. Hatakeyama et al. discloses that the beam source provide fast atomic beams, ion beams, electron beams, laser beams, radiation beams, X-ray beams, or radical particle beams. See col. 21, line 67 through col. 22, line 2.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,015,976 to Hatakeyama et al.

Referring to claim 17, Hatakeyama et al. discloses all the limitations of the claimed invention, except Hatakeyama et al. does not appear to disclose that the mask is in contact with the waveguide. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the mask in contact with the waveguide, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. Placing the mask on the waveguide, is minimizing the separation between the two components, and would clearly fall into the realm of finding an optimum or workable range for the distance between the two components. In re Aller, 105 USPQ 233.

Referring to claim 18, Hatakeyama et al. discloses all the limitations of the claimed invention, except Hatakeyama et al. does not appear to disclose that the mask is up to 250 microns above the waveguide. It would have been obvious to one having ordinary skill in the art at the time the invention was made to place the mask up to 250 microns above the waveguide, since it has been held that

where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

Referring to claim 19, Hatakeyama et al. discloses all the limitations of the claimed invention, except Hatakeyama et al. does not appear to disclose that the mask is moved a distance of 50-100 microns. It would have been obvious to one having ordinary skill in the art at the time the invention was made to move the mask a distance of 50-100 microns, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

Referring to claim 20, Hatakeyama et al. discloses all the limitations of the claimed invention, except Hatakeyama et al. does not appear to disclose that depth of the taper is in the range of 0-5 microns. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the depth of the taper 0-5 microns, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

Allowable Subject Matter

9. Claims 11 and 22 are allowable.

10. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

Referring to claim 3, the primary reason for this claim being allowable is the inclusion of the mask comprising tapered teeth.

Referring to claims 11 and 22, the primary reason for these claims being allowable is the inclusion of the diffraction grating being located on the upper surface of the tapered optical waveguide, while the substrate is located adjacent the lower surface of the tapered optical waveguide.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin S Wood whose telephone number is (571) 272-2364. The examiner can normally be reached on Monday-Thursday (7am - 5:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney B Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KSW

Brian Healy
Primary Examiner